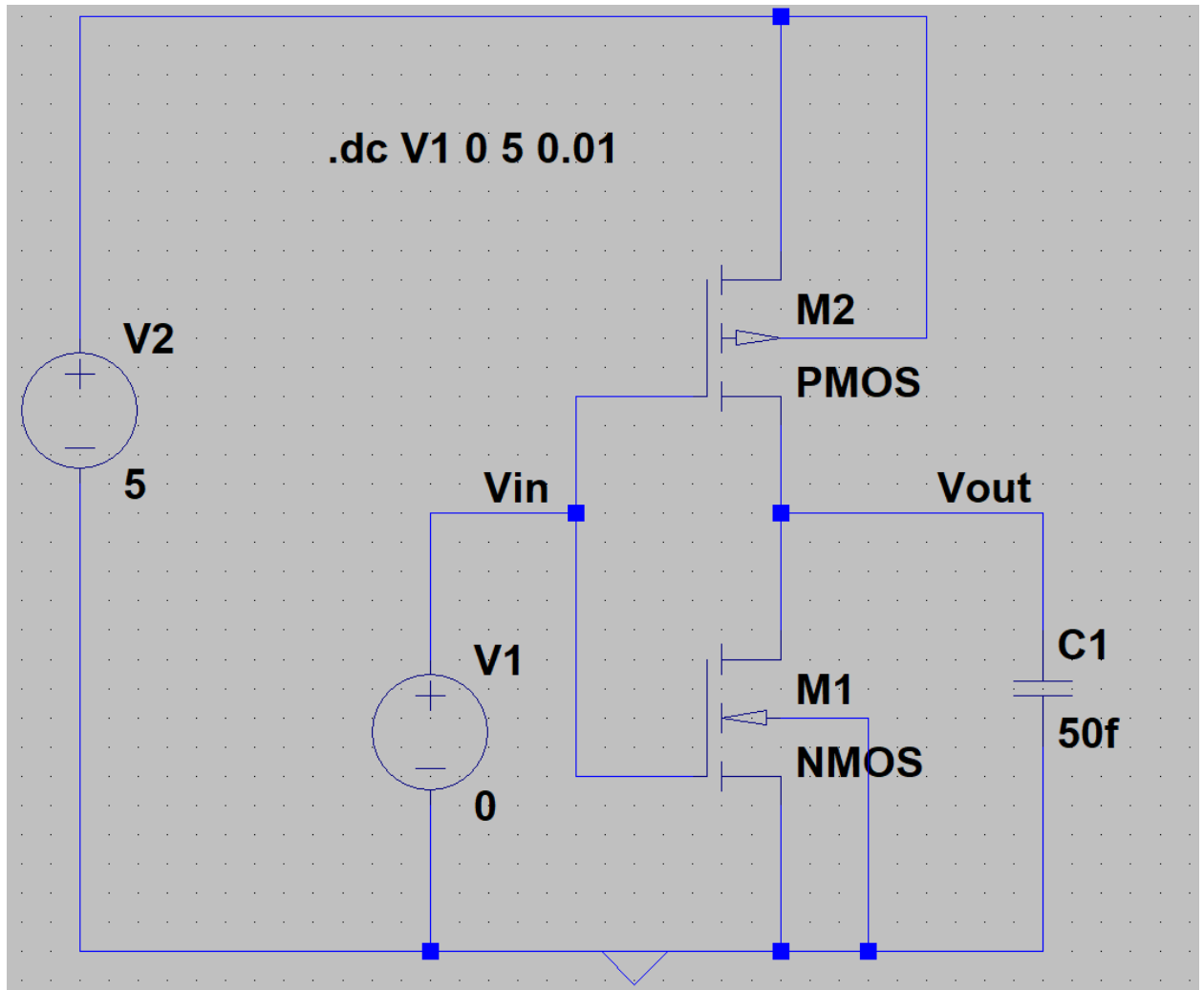
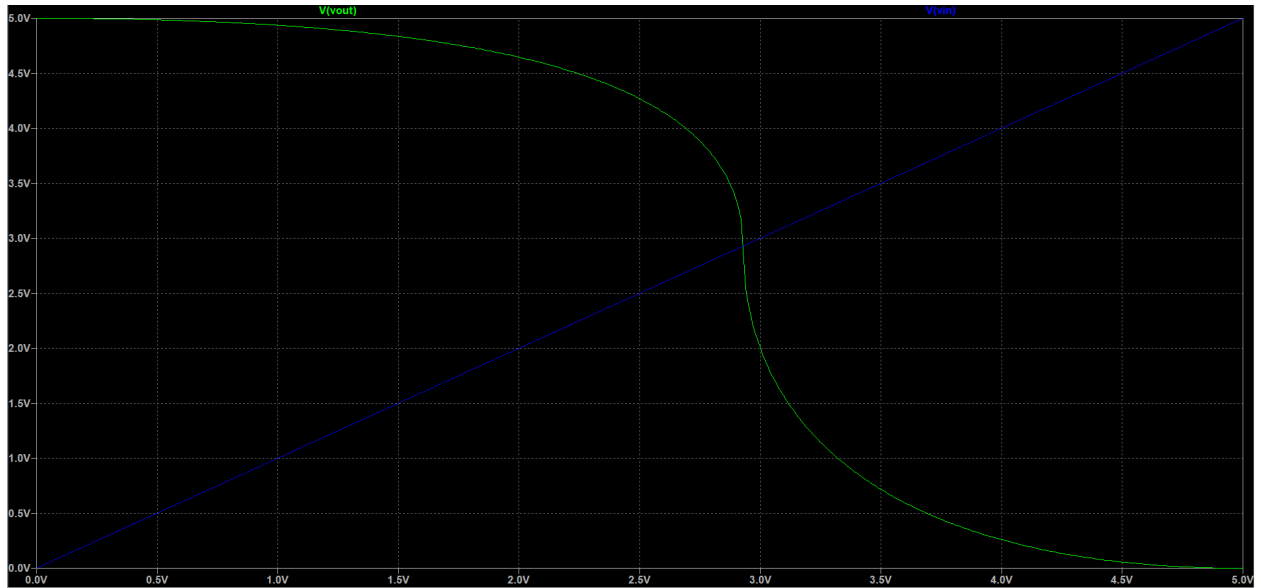


Experiment 2 steps:-

- 1) For nmos and pmos, go to components and select nmos4 and pmos4.
- 2) In length and width sections enter 2u for nmos and 4u for pmos, 0.5u length for both of them.
- 3) VDD should be 5V
- 4) Do the DC sweep of input Vin ie V1 from 0-5V, with increment of 0.01, plot the output.
- 5) The intersection point between Vin and Vout is the threshold voltage Vm.





- 6) Change the widths of pmos as indicated in manual and plot outputs.
- 7) For the next part we have to give a sinusoidal wave input. Right click on V1 and go to advanced. Do as follows.

Independent Voltage Source - V1

**Functions**

☐ (none)

☐ PULSE(V1 V2 Tdelay Trise Tfall Ton Period Ncycles)

☒ SINE(Voffset Vamp Freq Td Theta Phi Ncycles)

☐ EXP(V1 V2 Td1 Tau1 Td2 Tau2)

☐ SFFM(Voff Vamp Fcar MDI Fsig)

☐ PWL(t1 v1 t2 v2...)

☐ PWL FILE:

DC offset[V]:

Amplitude[V]:

Freq[Hz]:

Tdelay[s]:

Theta[1/s]:

Phi[deg]:

Ncycles:

Make this information visible on schematic: ☒

**DC Value**

DC value:

Make this information visible on schematic: ☒

**Small signal AC analysis(.AC)**

AC Amplitude:

AC Phase:

Make this information visible on schematic: ☒


**Parasitic Properties**

Series Resistance[Ω]:

Parallel Capacitance[F]:

Make this information visible on schematic: ☒

- 8) In edit simulation cmd do this. In DC offset write the value you get as Vm

 Edit Simulation Command ✕

Transient AC Analysis DC sweep Noise DC Transfer DC op pnt

Perform a non-linear, time-domain simulation.

Stop time:

Time to start saving data:

Maximum Timestep:

Start external DC supply voltages at 0V: ☐

Stop simulating if steady state is detected: ☐

Don't reset T=0 when steady state is detected: ☐

Step the load current source: ☐

Skip initial operating point solution: ☐

Syntax: .tran <Tprint> <Tstop> [<Tstart> [<Tmaxstep>]] [<option> [<option>] ...]

- 9) Plot the output along with Vin and measure the gain.
- 10) Now change the DC offset by a little amount and measure the gain again. Take 5-7 readings with different values of DC offsets and see how gain changes. Don't deviate too much from the original DC offset.

